

REMARKS

Claims 1, 2, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama (JP 11-34610) in view of Kojima et al. (JP 58167203). Applicant traverses the rejection because the cited prior art references, taken alone or in combination, fail to disclose or suggest a tire having a ratio h/SH of a tire radial-direction length h between edges of extension portions and edges of a belt ply having a maximum belt width to a tire section height $SH \leq 1.5/100$, as recited in claim 1.

Mama shows in Figs. 1-3, a tire having one or more cover layers 6 and a belt layer 5a. While the figures depict the cover layers 6 in relative proximity to the belt layer 5a, terminal edges of the cover layers are separated from terminal edges of the underlying belt layer by a relatively large vertical distance. Additionally, Mama is silent regarding a tire section height. Accordingly, Mama cannot disclose any relationship between the vertical separation between terminal edges of the belt cover layer 6 and terminal edges of the belt layer 5, and the section height of the tire.

Kojima is only cited to disclose a coating rubber having a loss factor that is greater than zero and less than 0.10. The tire disclosed by Kojima does not include a belt cover ply, and thus cannot disclose a ratio involving the distance between extension portions of a belt cover ply and an underlying belt ply.

In contrast, the present application teaches that a ratio of a tire radial-direction length h , measured between edges of an extension portion of a belt cover ply and edges of an underlying belt ply, and a tire section height SH should be less than or equal to $1.5/100$. That

is, as best shown in Fig. 1 of the present application, vertical separation between edge A of the belt cover ply 8 and the edge B of the first belt ply 5A is very small when compared to the tire section height SH. Maintaining this small vertical separation helps to reduce heat generated in a shoulder portion of the tire by repeated deformation received when the tire is rolling. These advantages can be seen in Table 1 of the present specification. Present Invention Tire 1 and Comparison Tire 1 differ only in the ratio h/SH . Accordingly, as shown in Table 1, even a small difference in the claimed ratio results in the improved uniformity and rolling resistance of Present Invention Tire 1, when compared with Comparison Tire 1. Because Mama and Kojima, taken alone or in combination, fail to disclose or suggest the ratio h/SH , applicant respectfully requests withdrawal of the rejection of independent claim 1, and its dependent claims 2 and 17.

Further, with regard to claim 17, the examiner states that the tires shown in Mama would likely satisfy the claimed ratio given a tire with a larger section height, such as a heavy-load tire or agricultural tire. However, claim 17 of the present application specifies that the tire is a passenger car tire, and not a heavy-load or agricultural tire. Accordingly, the examiner's assertion that heavy-load and agricultural tires are more likely to satisfy the claimed relationship are not relevant to this claim. For this additional reason, applicant again asserts that the rejection of claim 17 should be withdrawn.

Claims 3 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama and Kojima, and further in view of Mochida (JP 02-074403), and Yamamoto (JP 06-092108). Claims 3 and 5 depend from independent claim 1, and thus each of these claims

incorporates all the features of claim 1, plus additional features. Accordingly, applicant traverses this rejection for at least the reasons recited above with respect to the rejection of claim 1, and because Mochida and Yamamoto fail to remedy the deficiencies identified above with respect to the rejection. For these reasons, applicant respectfully requests withdrawal of the rejection of claims 3 and 5.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama, Kojima, Mochida and Yamamoto, and in further view of Motomura (USPN 5,215,612). Claim 4 depends from claim 1. Thus, claim 4 incorporates all of the features of independent claim 1, plus additional features. Accordingly, applicant traverses this rejection for the reasons discussed above with respect to the rejection of claim 1, and because Mochida, Yamamoto, and Motomura fail to remedy the deficiencies identified with respect to this rejection. Thus, applicant respectfully requests withdrawal of the rejection of claim 4 for the reasons discussed above with respect to claim 1.

Claims 9-10 and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama, in view of Yamaguchi (JP 06-344721) and Kojima. Applicant traverses this rejection because the cited prior art references, taken alone or in combination, fail to disclose or suggest a tire where axially inner portions of belt cover extension sections are disposed radially inward of one or more belt plies.

As discussed above, Mama shows, in Figs. 1-2, belt cover layers 6 arranged to cover the edges of underlying belt layers 5a and 5b. However, the figures show that axially

inner portions of belt cover layers 6 are disposed to be radially outward of each of the belt plies, and not radially inward of one or more of the belt plies, as recited in claim 9.

Also as discussed above, Kojima is silent regarding a belt cover layer in the tire. Accordingly, Kojima also fails to disclose that axially inner portions of a belt cover ply are disposed radially inward of at least one belt ply.

Yamaguchi discloses a tire including belt layers 4 and a belt reinforcing layer 5. Yamaguchi also teaches that a belt addition reinforcement layer can be added on both-sides of a belt layer 4. The belt reinforcing layer 5 is divided into three sections including a center section and two side sections. However, as shown in Fig. 1, the axially inner portions of the side sections of the belt reinforcing layer are disposed radially outward of all belt layers. Further, Yamaguchi teaches that the belt addition reinforcement layer is disposed radially outward of the belt reinforcing layer. Accordingly, Yamaguchi fails to disclose or suggest that the belt reinforcing layer or belt addition reinforcing layer has axially inner portions that are disposed radially inward of one or more of the belt layers, as required by claim 9.

In contrast, Fig. 5 of the present application shows that an axially inner portion of a belt cover extension sections 8'Y is disposed between a first belt ply 5a and a second belt ply 5b. Similarly, Fig. 6 of the present application shows that the axially inner portion of the belt cover extension section 8'Y is located radially inward of both the first belt ply 5a and the second belt ply 5b. Since, Mama, Kojima, and Yamaguchi, taken alone or in combination, fail to disclose or suggest this feature, applicant respectfully requests withdrawal of the rejection of claim 9 and its dependent claims 10 and 18-20.

Claims 11 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama, Yamaguchi, and Kojima, and further in view of Mochida and Yamamoto. Claims 11 and 13 depend from claim 9, and thus includes all of the features of claim 9, plus additional features. Accordingly, applicant traverses the rejection of claims 11 and 13 for the reasons recited above with respect to claim 9, and because Mochida and Yamamoto fail to remedy the deficiencies of the rejection of claim 9 as discussed above. Applicant respectfully requests withdrawal of the rejection of claims 11 and 13.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mama, Kojima, Mochida, and Yamamoto, and further in view of Motomura. Claim 12 ultimately depends from claim 9, and thus includes all of the features of claim 9, plus additional features. Accordingly, applicant traverses this rejection of claim 12 for the reasons discussed above with respect to claim 9. Withdrawal of this rejection is respectfully requested.

Claims 1, 2, 9, 10, and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Kojima. Applicant traverses this rejection for the reasons given below.

Regarding claims 1, 2, and 17, applicant traverses the rejection because the cited prior art fails to disclose or suggest the ratio h/SH of a tire-direction length h between edges of the extension portions and edges of the belt ply, having a maximum belt width to a tire section height SH being equal to or less than $1.5/100$. As discussed above, Yamaguchi shows that a tire includes two belt layers 4, and a belt reinforcing layer 5 disposed radially

outward of the belt layers. However, the reference is silent regarding a tire radial direction distance between edges of the belt reinforcing layer and edges of the belt layers. Accordingly, it follows that Yamaguchi must also be silent regarding any ratio involving the radial direction difference between these layers.

Also as discussed above, Kojima fails to disclose or suggest a tire that includes a belt reinforcing layer. Accordingly, Kojima cannot disclose the ratio h/SH as recited in claim 1. Thus, since Yamaguchi and Kojima taken alone or in combination do not disclose the ratio h/SH as recited in claim 1, applicant respectfully requests withdrawal of this rejection as it applies to claim 1 and its associated dependent claims.

With respect to claims 9-10 and 18-20, applicant traverses the rejection because Yamaguchi and Kojima, taken alone or in combination, fail to disclose or suggest that axially inner portions of belt cover extension sections are disposed radially inward of one or more of the belt plies. As discussed previously, Yamaguchi discloses a belt reinforcing layer disposed radially outward of underlying belt layers 4. As shown in Fig. 1 of Yamaguchi, axially inner portions of the side sections of the belt reinforcing layer are also disposed radially outward of the belt layers 4. Further, although Yamaguchi discloses a belt addition reinforcement layer arranged in the both-sides region of the belt layer, the reference teaches that the belt addition reinforcement layer is disposed radially outward of the belt reinforcing layer 5. Accordingly, the belt reinforcement layer must also be radially outward of the underlying belt plies.

Kojima fails to disclose a belt cover layer. Accordingly, Kojima also must not disclose that axially inner portions of a belt cover layer are disposed radially inward of a belt layer. Thus, since the cited prior art references, taken alone or in combination, fail to disclose or suggest that axially inner portions of belt cover extension sections are disposed radially inward of one or more belt plies, applicant respectfully requests withdrawal of the rejection of claim 9 and its associated claims 10 and 18-20.

Claims 3-5 and 11-13 stand rejected under Yamaguchi and Kojima, and further in view of one or more of Mochida, Yamamoto, and Motomura. Claims 3-5 ultimately depend from claim 1, while claims 11-13 ultimately depend from claim 9. Accordingly, each of these claims incorporates all of the features of its associated independent claim. Therefore, applicant traverses the rejections of claims 3-5 and 11-13 for the reasons recited above with respect to claims 1 and 9, and because Mochida, Yamamoto, and Motomura fail to remedy the deficiencies identified with respect to these rejections. Withdrawal of the rejection of claims 3-5 and 11-13 are respectfully requested.

Claims 1, 6, 8-10, 14, and 16-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Serra (WO 2002/26878) in view of Yamaguchi, Mama, and Kojima. Applicant traverses for the reasons given below.

Regarding claims 1, 6, 8, and 17, applicant traverses the rejection because the cited references, whether taken alone or in combination, fail to disclose or suggest the ratio h/SH of a tire radial-direction length h between edges of the extension portions and edges of the belt ply, and a section height SH is less than or equal to $1.5/100$, as recited in claim 1.

Serra discloses a tire including two belt strips and a reinforcing layer placed on the radially outermost belt strip. However, Serra fails to disclose a radial distance between the terminal edges of the reinforcing layer and the terminal edges of the belt strips. Additionally, Serra is silent regarding a section height of the tire. Thus, it follows that Serra cannot disclose the ratio h/SH as recited in claim 1 of the present application.

Yamaguchi discloses that a tire includes a two-layer belt layer 4, and a belt reinforcing layer 5 (See paragraph [0009]). As shown in Fig. 1 of Yamaguchi, the belt reinforcing layer 5 is disposed radially outward of the belt layer 4. However, as with Serra, Yamaguchi does not disclose a distance between edges of the belt reinforcing layer and edges of the belt layer, taken in a tire radial direction. Accordingly, since Yamaguchi fails to disclose this distance, it follows that Yamaguchi cannot disclose that a ratio between the distance and a section height of the tire falls within the range recited in claim 1.

As discussed above, Mama discloses that a tire includes one or more cover layers 6, where a portion of each of the cover layers is relatively close to belt layer 5a. However, as shown in Figs. 1-3, terminal edges of the cover layers 6 have a relatively large vertical separation relative to terminal edges of the underlying belt layer 5a. Additionally, Mama is silent regarding a tire section height. Accordingly, it follows that Mama is necessarily silent regarding any relationship between the vertical separation between terminal edges of the cover layer 6 and terminal edges of the belt layer 5a and the section height of the tire.

Similarly, as discussed above, Kojima is cited only to disclose a coating rubber having a loss factor greater than 0 and less than 0.10. As acknowledged by the examiner, Kojima is silent regarding a belt cover layer. Accordingly, it necessarily follows that Kojima is also silent regarding ratio h/SH of a tire radial-direction length h between edges of the extension portions and edges of the belt ply, and a section SH , as recited in claim 1 of the present invention.

In contrast, the present application teaches that a ratio h/SH of a tire radial-direction length h , measured between edges of an extension portion of a belt cover ply and edges of a belt ply, and a tire section height SH should be less than or equal to 1.5/100. That is, as shown in, for example, Figs. 1, 2, and 4, the radial-direction separation between the edge A of the belt cover ply 8 and the edge B of the first belt ply 5A is small when compared to the tire section height. Maintaining this ratio advantageously moderates heat generated in a shoulder portion of the tire by the repeated deformation received when the tire is rolling.

Moreover, while the examiner asserts that the claimed ratio does not conclusively show unexpected results, applicant asserts that, as shown in Table 1 of the present specification, maintaining the claimed ratio advantageously increases the uniformity and reduces the rolling resistance of Present Invention Tire 1, as compared with Comparison Tire 1. Because the cited references, taken alone or in combination, do not disclose or suggest the ratio h/SH as recited in claim 1, applicant respectfully requests withdrawal of the rejection of claims 1, 6, 8, and 17.

Further, as discussed above with regard to claim 17, the examiner has stated that the tires shown in Figs. 1-3 of Mama would likely satisfy the claimed ratio, since heavy-load tires and agricultural tires have larger section heights. However, claim 17 of the present application recites that the tire is a passenger-car tire, and not a heavy-load or agricultural tire. For this additional reason, applicant again asserts that the rejection of claim 17 should be withdrawn.

Regarding claims 9-10, 14, 16, and 18-20, applicant traverses the rejection because Serra, Yamaguchi, Mama, and Kojima, taken alone or in combination, fail to disclose or suggest that axially inner portions of belt cover extension sections are disposed radially inward of one or more belt plies. Serra teaches that a pneumatic tire includes belt strips 106a and 106b, and a reinforcing layer 106c arranged radially outward of the outermost belt strip. However, as shown in Fig. 1 of Serra, axially inner portions of the reinforcing layer 106c are disposed radially outward of a belt strip.

As discussed above, Yamaguchi discloses a belt reinforcing layer and a belt addition reinforcement layer each disposed radially outward of underlying belt layers. That is, Yamaguchi fails to disclose or suggest that axially inner portions of the belt reinforcing layer or belt addition reinforcement layer are disposed inward of one or more of the belt layers.

Mama, as stated previously, shows belt cover layer 6 disposed along the edges of belt layers 5a and 5b in Figs. 1 and 2. However, the axially inner portions of belt cover layer 6 are disposed radially outward of the belt layers 5a and 5b.

As noted above, Kojima is cited merely for disclosing the loss factor of a rubber compound, and does not disclose the use of a belt cover layer.

In contrast, the present application discloses a belt cover ply 8' that includes belt cover extension sections 8'Y. As shown in Fig. 5, the axially inner portions of belt cover extension section 8'Y is disposed radially inward of a second belt ply 5b. Similarly, as shown in Fig. 6 of the present application, the belt cover extension section 8'Y is disposed radially inward of both the first belt ply 5a and the second belt ply 5b. Since the cited prior art references, taken alone or in combination, fail to disclose or suggest this feature, applicants respectfully request withdrawal of the rejection of independent claim 9, and its associated dependent claims.

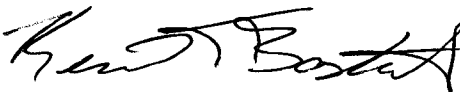
Claims 7 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Serra, Yamaguchi, Mama, Kojima, Kan (USPN 4,444,236), and Haneda (JP 07-257116). Claims 7 and 15 ultimately depend from claims 1 and 9, respectively. Accordingly, each of these claims incorporates all of the features of its respective independent claim, plus additional features. Therefore, applicant traverses the rejection of claims 7 and 15 for the reasons discussed above with respect to claims 1 and 9, and because Kan and Haneda fail to remedy the deficiencies identified above. Withdrawal is respectfully requested.

For all of the above reasons, applicant submits that this application is in condition for allowance, which is respectfully requested. The examiner should call applicant's attorney if an interview would expedite prosecution.

If a Petition under 37 C.F.R. §1.136(a) for an extension of time for response is required to make the attached response timely, it is hereby petitioned under 37 C.F.R. §1.136(a) for an extension of time for response in the above-identified application for the period required to make the attached response timely. The Commissioner is hereby authorized to charge fees which may be required to this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 07-2069.

Respectfully submitted,

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